

a power source having a positive terminal connected to the silicon substrate and a negative terminal connected to the electrode; and

an illumination unit having a light source for illumination of a second surface of the silicon substrate with an illumination intensity of at least 10mW/cm^2 .

1. 2. (Amended) The electrochemical etching system in accordance with claim 1, wherein a ratio of a maximum illumination to a minimum illumination of the second surface of the silicon substrate is no more than 1.69:1.

3. (Amended) The electrochemical etching system in accordance with claim 1, further comprising:

a reference electrode positioned in the hydrofluoric acid; and

a voltage meter electrically connected between said reference electrode and the silicon substrate.

4. (Amended) The electrochemical etching system in accordance with claim 1, wherein said illumination unit has an illumination controller for controlling the illumination of the second surface of the silicon substrate.

5. (Amended) The electrochemical etching system in accordance with claim 4, wherein said illumination controller controls quantity of light emitted from said light source.

6. (Amended) The electrochemical etching system in accordance with claim 4, wherein said illumination controller has a modulator, said modulator being connected between said light source and the silicon substrate for modulating the light emitted from said light source.

7. (Amended) The electrochemical etching system in accordance with claim 4, further comprising:

a current detector for detecting an electric current supplied from said power source to the silicon substrate; and

an electric circuit for controlling quantity of the light emitted from said light source based upon the electric current detected by said current detector.

8. (Amended) The electrochemical etching system in accordance with claim 1, further comprising a unit for retaining a stable quality of the hydrofluoric acid.

9. (Amended) The electrochemical etching system in accordance with claim 1, further comprising a metal plate positioned on the second surface of the silicon substrate, said metal plate having a plurality of openings arranged uniformly for transmitting the light emitted from said illumination unit toward the second surface of the silicon substrate.

10. (Amended) The electrochemical etching system in accordance with claim 9, wherein said metal plate is electrically conductive and mounted on the second surface of the silicon substrate.

11. (Amended) The electrochemical etching system in accordance with claim 10, wherein said metal plate is integrally formed on the second surface of the substrate.

12. (Amended) The electrochemical etching system in accordance with claim 10, wherein said metal plate is independently formed on the second surface of the substrate.

13. (Amended) The electrochemical etching system in accordance with claim 9, wherein a part of said metal plate remaining between neighboring openings has a width larger than a thickness of the silicon substrate.

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14. (Amended) An electrochemical etching method comprising:
placing a first surface of an n-type silicon substrate in contact with an electrolyte,
illuminating a second surface of the silicon substrate with an illumination intensity of at least $10\text{mW}/\text{cm}^2$, and
controlling an etching current with the illumination of the second surface to form a pore or trench in the first surface of the silicon substrate

15. (Amended) The electrochemical etching method in accordance with claim 14, further comprising:

arranging a metal plate on the second surface of the silicon substrate, the metal plate having a plurality of openings arranged uniformly; and
illuminating the second surface of the n-type silicon through the openings.

16. (Amended) The electrochemical etching method in accordance with claim 14, wherein a ratio of a maximum illumination to a minimum illumination of the second surface of the silicon substrate is no more than 1.69:1.

17. (Amended) An electrochemical etching method comprising:
placing a first surface of an n-type silicon substrate in contact with an electrolyte;